MODERN PLUMBING

HOW TO FIX

By

GILBERT BOOTH

Helpful Hints for the Property Owner, Handy Man, Caretaker, Rental Agents Etc.

Things a Housewife should know about the Home Plumbing

Advice and Valuable Information

TRADE SECRETS

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FOREWORD

The writer's intention in the preparation of this valuable booklet, and drawings, to make the plans and information that are contained herein of special value and assistance to any ambitious person, who is ever alert to find out ways and means, and hints and suggestions on how to fix and repair all kinds of fixtures relating to plumbing. Things that seem strange to you now, will, after having studied this book, appear quite easy. We learn by doing, and practice makes perfect.

With the assistance of the information contained herein it will be possible to earn while you learn.

The knowledge attained by the writer is the result of seventeen years of experience and work, and should prove of special value to any ambitious person, no matter where they are.

The writer's object is to make these articles clear and simple to the layman and to save the property owner or agent many times the cost of this book.

If parents would train their sons to learn these valuable lessons they would be doing a whole lot toward making them proficient in life's battles.

A person that knows how to fix and repair all kinds of plumbing need never be out of work.

This information book will save the owner many times its cost.

It will be a great help in keeping the plumbing in the home in a sanitary condition, thereby preserving the health of the family.

GILBERT BOOTH.

HOW TO FIX FAUCETS, TAPS ETC.

The tap used over the sink is the one faucet which generally gets out of order oftener than any other faucet used in the home or building.

In fixing a faucet first turn off water from the house. Then take a monkey wrench and unscrew the top of faucet where the square shoulder is, then turn the tee handle the reverse way as if to open up the faucet to let water run out. A few turns this way and the top should lift out, then a new washer can be put on in place of the old one. If this new washer does not stop the water from dripping it is best to get a new tap.

In putting washers on bath faucets, care must be taken to get washer on the right way (see figs. 1, 2, and 3.)

Where a round ball washer is used the narrow part of washer must be put on first and always have a small brass washer on the back of rubber washer to keep it in place.

The bath faucets are very easy to fix and lots of women make a practice of repairing all the taps around the home.

What a person needs to do is to watch how the washers are already put on after the faucet has been disconnected. If after getting them apart some difficulty is experienced in putting washers on so they don't leak, study figures 1, 2 and 3 carefully. After having once got them fixed right it will be an easy matter to renew them whenever they need renewing.

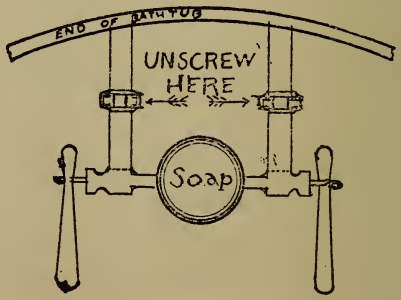


Fig. 1.

When the water refuses to run through the tap very fast it is generally found to be caused through the rubber washer or gasket being swollen and expanded inside of tap. A

new washer is all that is necessary to allow a good flow of water to pass through the faucet.

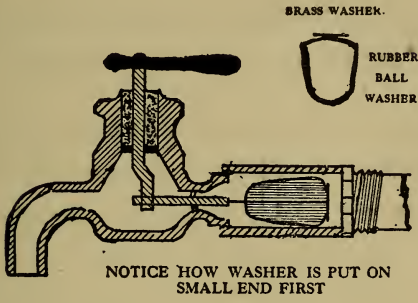


Fig. 2.

When the faucet rattles or shakes when in use, a new washer is needed.

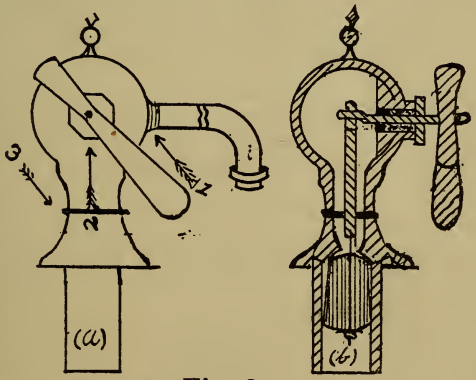


Fig. 3.

TAKING CARE OF PLUMBING FIXTURES DURING COLD WEATHER.

Property owners and others interested in the care of property will save themselves much worry and expense by adopting the following system, when property is vacant:

All water pipes leading to and in the house to be drained. This should be done by first having water turned off WHERE it comes in the house. All pipes inside of house fixed to drain toward the cut-off valve.

After water is turned off, open the faucets to allow the air to enter and let water drain out. Always be careful to empty the hot water boiler by opening the small valve at the bottom of boiler.

HOW TO FIX

All flush boxes and toilet bowls should be drained free from water.

A few handfuls of salt should be put in the bowl to stop the sewer gas from coming up through the trap of bowl.

Always put salt in the traps of the sink and wash basins, this can be done by pouring salt through strainer in sink or basin.

When the time comes to have water turned in the house again the usual trouble of bursted pipes, broken fixtures, etc., will have been practically eliminated.

CAUSE OF TOILET BOX FLUSHING ALL THE TIME.

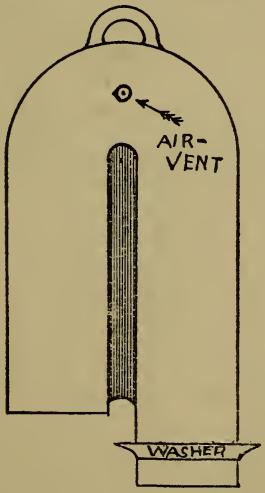
If there is a water meter installed on the premises this matter of water wastage is a very expensive item.

This generally happens where the tank or box is fixed high up close to the ceiling. After the chain has been pulled and the water keeps up a constant flushing down the bowl either the washers need attention or the syphon.

The syphon, or what is sometimes called the gooseneck, inside of tank will have to be rewasherd.

The proper kind of washer to put on is what is called a feather edge washer. After the new washer has been put on and the water still keeps up the flushing every time the chain is pulled, the dirt and dust will have to be cleaned from the tiny opening on top of the syphon.

By doing this the air is allowed to enter syphon after the box has been emptied there by breaking the action of syphon and allowing water to run in box and fill to its proper height, which is about an inch and a half below the small air inlet on the syphon.



Washbasins or Lavatories

One of the most important measures to be taken, for the health of individuals and one which is very often overlooked, through not knowing where the danger lies.

The writer has often been called in to some of the finest homes to locate foul odors in the rooms where wash basins and lavatories had been installed for a number of year, also in bathrooms fitted up with washbasins. In most cases the cause of the trouble has been found in the overflow in the washbasin. (See Fig. 4.)

An overflow from a washbasin is the grate or opening generally made to serve as a soap tray as well.

When the basin is in use the dirt and soap generally mix on the surface of the water and is splashed down in this grate or overflow where it cannot be seen; very soon this sediment begins to give off a very offensive odor and unless a person is enlightened as to its whereabouts it is liable to cause sore throat or other afflictions, on account of it being, as one might say, under one's nose.

HOW TO FIX

The best thing to do is to get a kettle full of boiling water and pour down through the grate of overflow, lye is a very good article to use at the same time as the water is being poured down, as it helps to cut the grease.

Fig. 4.

Great care must be taken if the washbowl is made of porcelain not to get the water too hot when pouring down the overflow, as boiling water may crack the basin, but if the basin is made of enameled iron boiling water may be used with safety. This cleansing process ought to be done once a week and then there will not be any further trouble from this source. A good disinfectant then should be used and poured down the overflow.

The drawing on the opposite page will help to make the meaning clearer to one unaccustomed to the different makes of plumbing fixtures.

A plunger is a good thing to have in the home to use on the traps and sink pipes. When used on the sink pipes it helps to loosen up the grease and sediment.

HOW TO FIX WATER CLOSETS ETC.

In making reference to this most particular branch of the plumbing in a residence or building of any kind, it is the writer's object to impress upon the reader's mind that serious results very often arise from neglecting to keep the fixture in proper working order.

If the bowl should happen to get stopped up or clogged at any time it should be fixed immediately it is detected. (See Fig. 5, where stoppage generally occurs.)

In most cases a plunger or what is sometimes called a plumber's friend will by forcing up and down in bowl succeed in dislodging the obstruction.

In pouring slop water down closet bowl, care should be taken to see that no cakes of soap or mop rags are allowed to fall in. When a piece of soap gets clogged in the trap it is very difficult to dislodge.

If a toilet bowl refuses to syphon, or the water tank when flushed refuses to clear the contents of the bowl, there must be a stoppage in the bowl.

The way to do first is to shut off the water from entering the closet tank or flush box; this can be done by turning off small valve on the toilet supply pipe; then flush the tank to let out what water remains, and dip out the water in bottom of tank so no more water can enter the bowl. Then take a dipper or some small vessel and empty the bowl by dipping the water out.

Get a small piece of looking glass or mirror, have it small enough to fit down in bottom of bowl so that by holding it facing upward toward the outgoing opening of bowl it will be possible to see up into the bowl

through the mirror what is causing the stoppage. Then by taking a small piece of wire with one end bent like a fish-hook it is sometimes possible to pull down the obstruction.

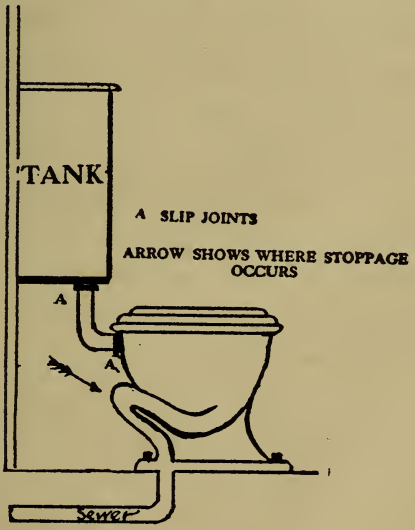


Fig. 5.

If this method does not give the desired result the next best thing to do will be to take down the tank.

This can be done by taking a Stillson wrench and unscrewing the slip joints on the bowl and under the tank. Then take out the screws that hold the bowl to the floor and lift up the bowl. Take outside to some convenient place where it can be cleaned. Place the bowl wrong end up and get the hose and turn a stream of water through the bowl.

This method nearly always forces out whatever is in the bowl or leg of the trap. To make sure that the bowl is clear take a small rock about an inch or two in diameter and let run through the bowl by upending the bowl. By doing this one can satisfy themselves that the bowl is clear of any obstruction.

Another way to remove any object that may be in the bowl is to get a washer or some such thing heavy enough to run through the bowl. Tie this to the string, then let the weight run through the bowl till it shows through the bottom end of bowl. Then fasten a strong piece of rope to the string already in the bowl. On the end of rope fasten a small sack or cloth and then pull the whole thing through the bowl.

HOW TO FIX

This method always removes the obstruction,

After the bowl has been cleansed set back in position with a thick layer of putty or a rubber gasket and bolt down to floor as before. Then screw tank back to its original place on the wall, and make the connection with elbow, with the slip joints packed with thick string or tape. Then tighten up the slip joints with a wrench so that when the toilet is flushed they will not leak. The small supply pipe that supplies the tank with water can be made tight at the connection with a small rubber gasket or washer.

HOW TO CLEAN TOILET BOWL AND IMPROVE THE FLUSHING.

In order to clean off the sediment and accumulation which always collects on the inside of toilet bowls the first thing to do is to stop the water from entering the tank or flush box. This can be done by fastening up the copper float or ball inside of tank. This stops the water from coming in the tank.

When this has been done dip all the water out of the bowl with a small vessel and dry with cloths. After the bowl has been thoroughly dried get a pint of Muriatic Acid and pour down the overflow pipe which is inside of the tank. (See Fig. 6.)

Great care should be taken when pouring acid not to let it come in contact with the rubber washers inside of tank. By pouring the acid down this way through the overflow it removes all obstructions inside of the bowl which cannot be got at any other way to cleanse. This method also greatly improves the flushing of bowl thereby making it clean and sanitary.

HOW TO FIX

Care must be taken not to let a particle of water run down in the bowl while the acid is being used on the bowl.

The accompanying drawing will help to make clear and show the workings of the tank. After acid has been allowed to stand in bowl about a half hour, water can then be allowed to run to flush the bowl.

In cases where the flush tank is high up, close to ceiling, proceed as explained before The only difference is that the acid will have to be poured down through the flush pipe leading from the tank down to the bowl.

While the bowl is free from water after the acid has been poured down through the overflow pipe, pour a little acid around the inside of bowl. This helps to loosen up the sedi-

ment that collects on the inside of toilet bowls, which is very objectionable. After leaving acid in for about half an hour it can

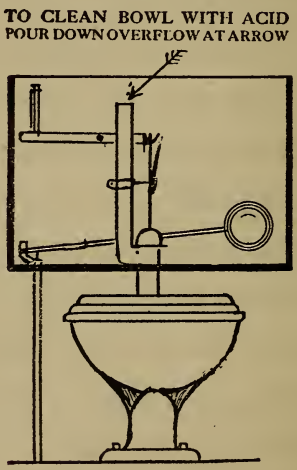


Fig. 6.

be easily cleaned off. Always be very careful not to get any of the acid on the hands or clothing.

THE CARE OF SINKS

In referring to this part of the plumbing in the kitchen where the grease and dish-water accumulate most, it is vital that the closest watch be kept to insure its cleanliness and always to have it free from unpleasant odors. (See Fig. 7.) The first thing to do: A good way is to always keep the drain pipes clean and free from filth, and by taking the small set screw or trap screw generally found under the sink, out, and cleaning the trap, it will help a whole lot to keep the water from smelling, and coming back up in the kitchen. If the pipes should become clogged further on down, a stout wire should be inserted in the pipe and forced down till the water runs away freely; this method always cleans the inside of the pipes so that the grease and sediment may pass on down in the main drain.

After a drain pipe or a sink pipe has been thoroughly cleansed in this manner, a pail full of boiling water should be poured down the sink along with the contents of a can of lye or some good disinfectant; this method scours the sides of pipes and is a very good

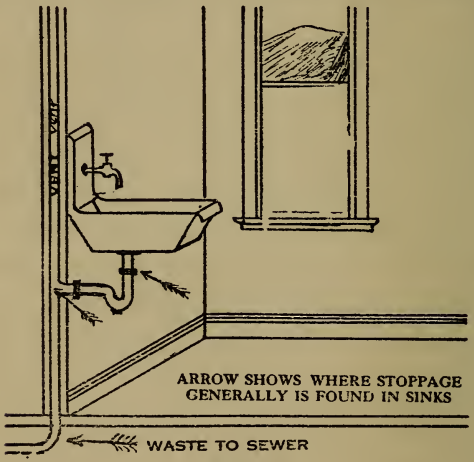


Fig. 7.

thing to do one or twice each week. Don't wait till the drain pipes begin to clog, but make it one of your weekly chores to devote just a few minutes to the most important part of the plumbing system in the home.

HOW TO CLEAN WASTE PIPE FROM BATH TUBS.

When waste pipes stop up from the bath tub the cause is generally to be found in the pipes directly connected to the tub, and leading through the floor. (Fig. 8.)

By inserting a thin wire with a small twist on the end to hook any obstruction that may be in the first few joints, such as lint, etc., it is possible by putting the wire through the grate or waste opening in bottom of tub to draw out the obstruction. These things things nearly always collect at this point.

If the stoppage seems to be further on down the pipes it is advisable to work on the pipes from underneath the floor. If the pipes are located in basement and can be easily got to in order to clean and fix, so much the better. When the lead pipes are clogged take a pocket knife and insert blade in top of pipe, open up about an inch and make opening wide enough to allow for a wire to be inserted in pipe. Then force wire down pipe toward the large four-inch pipe which connects with main sewer. This method forces the grease

and sediment out of pipes. After the pipes have been forced out, turn a good stream of hot or boiling water down in the pipes. Always take care to close the opening made in the pipe. In order to close up the lead pipe where it has been cut open to allow the wires to be inserted, take a hammer and tap the sides of the lead pipe on each side of where the pipe was opened so as to allow the lead to come close together on top of pipe. Then take a penknife and scrape the lead around this point. By scraping the lead the solder will stick to it. This method makes it easy to solder lead pipes. Then take a small piece of soldering fluid or stick solder, which can be bought at any hardware store for a few cents, and with the aid of a small soldering iron, which must be heated by holding in gas flame or fire. When iron has been heated

enough so it will melt the piece of solder, hold the solder over where opening has been cut and melt the solder to the pipe, taking great care not to melt the pipe. Resin or candle grease smeared on helps to make the solder stick to the lead or brass. This method is very simple and any one can save themselves many dollars by doing these little jobs themselves.

Cutting the pipes will in no way injure the plumbing. Great care must be taken not to hold soldering iron too long in one spot when repairing lead pipes.

In some cases there is what is called a cleanout—that is, a brass plug fixed so it can be screwed out with a monkey wrench and the wires forced in the pipes.

Illustration shows where stoppage generally occurs in bath tubs.

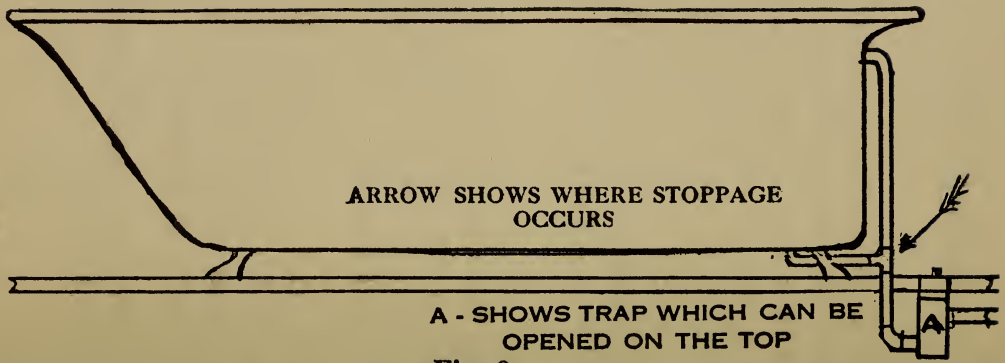

ARROW SHOWS WHERE STOPPAGE
OCCURS
A - SHOWS TRAP WHICH CAN BE
OPENED ON THE TOP
A

Fig. 8.

THE DANGER OF SEWER GAS ESCAPING IN BATHROOMS, BASEMENTS, ETC.

The author of this book has happened across so many cases where sewer gas has been escaping into the home exposing the members of the family to the ever present germs of disease.

In numberless cases the joint on the floor that connects the closet bowl to the soil pipe leading to the sewer, is made and set with putty. After a little while this putty sets hard and shrinks, drys and crumbles. The illustration (fig. 9) shows just exactly where the sewer gases, that do so much to undermine a person's health, escape into the house. Every person interested in the sanitary condition of the plumbing in their homes should see that this most particular joint of the whole plumbing system is in perfect order and strictly sanitary. The old style putty joint should be done away with altogether.

Putty joints should not be tolerated in any shape or form in a building. Every home owner should insist on this one joint being

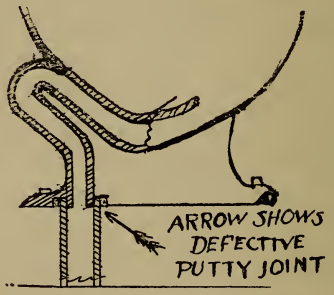


Fig. 9.

made sanitary with a regular brass flange and rubber gasket. A few dollars spent in this direction will no doubt save a good many dollars in curing sore throats.

HOW TO FIX
BOX OR TANK REFUSING TO WORK PROPERLY.

When the tank is what is termed a low tank and will not flush when the press button is pushed down, the trouble is generally found to be caused through the wire or flush ball. If the wire has broken away from the rubber flush ball a new flush ball will have to be installed. This can be unscrewed very easily by holding the rubber with one hand and turning the small wire with the other. Then screw the new flush ball on the wire with the threads on.

In some cases the trouble is caused by not having enough water in tank to flush the bowl. To allow more water to enter tank hold the rod with the float on with one hand and lift or bend up the brass rod with the other hand till the water stands in tank to the height of about an inch from top of overflow pipe.

When the water runs down the overflow pipe after the tank has been filled up and keeps up a constant stream, the cause is very often found to be through the copper float leaking and getting full of water. In this

case the best and cheapest way is to get a new copper float or ball and replace in tank. This can be done by holding the brass rod with a pair of pliers and unscrewing the copper float. If after this has been installed the water still leaks into the tank, the washers in the valves will need renewing. To renew the washer in the valve which controls the supply to the tank, first shut off water; then take out the small set-screws that hold the valve. These can be taken out with a pair of pliers and a screwdriver. Then screw off

the brass cap and get a small piece of black rubber and cut a small disk of it to fit the cap. Put back the same way as taken apart and turn on water.

Fig. 10 shows working of tank.

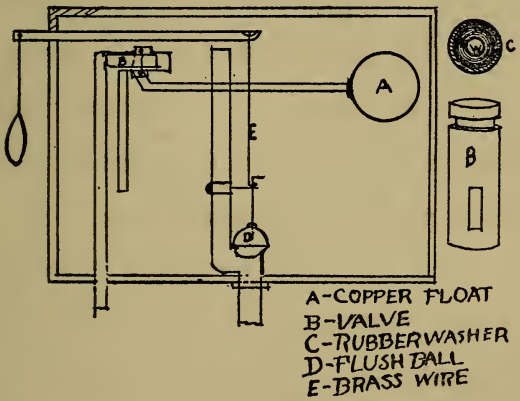


Fig. 10.

THE FLOOR OR CELLAR DRAIN—HOW TO KEEP SANITARY.

The drain in the cellar floor is a constant source of trouble if not properly attended to. This is the place, if any, in the home, that sewer gas is more liable to escape up into the house. The dirt and dust that is generally found in and around the floor drain makes them more liable to have the water seal of trap evaporate. If the seal of trap is broken this allows the foul air to come up through the trap from the main drain. This must be attended to or else the occupants of the dwelling will be exposed to all kinds of odors. Always flush this fixture once a week, and by using a hose to flush the trap, it can be

kept sanitary. The author has come across so many cases where complaints of sewer gas have been traced to the neglect of these traps and drains in cellars. A good disinfectant should always be used around a floor drain.

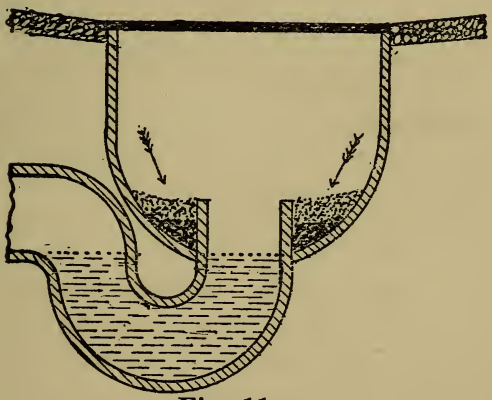


Fig. 11.

The arrows show where sediment and filth always collect in these drains. (Fig. 11.)

WATER JACKETS

The right way to fix the water jacket in the kitchen range or stove, which any one with ordinary intelligence can do just as well as your local plumber, or stove man:

When the water in the stove or range boiler starts to pound and rattle or make a hammering noise when the faucets are being used, it is a sure sign that there is something wrong with the water jacket or coil. This matter should be attended to right away, for, if let go too long, may be attended with serious results. When a jacket is not cleaned regularly, it has a tendency to burst.

The first thing to do is to let the fire die out in stove, then connect the garden hose to the faucet or tap generally placed at the bottom of boiler or tank. (See Fig. 12.) On the top of the tank there should be a stop valve or shutoff, so that the water may be shut off while the tank or jacket is being fixed. This valve regulates the hot water supply through the house. When anything goes wrong with the hot water faucets or pipes, by using this valve the cold water may

be turned on just as usual. In such cases where there is no valve regulating the hot water, the only thing to do is to shut down the water supply to the house. This valve is generally found underneath the floor or in the basement. In most cases the water supply enters the house from the front street.

When it is necessary to drain the boiler, turn off water first and then plug the pipe up where it enters the top of the boiler. Then turn on cold water again. After the tank has been emptied, the water front or jacket can be disconnected by unscrewing the unions first, and then the pipes. A person ought to have a pair of Stillson wrenches to do this kind of work. Then the side plates should be removed from inside of stove; this makes it easier to remove the jacket. The jacket can be taken outside to some convenient place where water can be turned in it to clean out sediment and lime, which is the cause of the water pounding in boiler when fire is lit in stove.

The next step now is to take a long piece of iron pipe or thin bar iron about a quarter of an inch thick and thin enough to fit down in jacket—about two feet long is ample—sharpen the end of iron so it will cut the alkali or lime and sharp enough to scrape the sides of jacket clean and free from sediment. If the alkali has set hard in the jacket it will be best to take a hammer and tap the sides of jacket very gently so as not to crack jacket. This method helps to loosen sediment, and with a hose flush out with water. Always be sure the jacket is clean. This can be tested by letting the water run in through one of the openings in the jacket. If the water runs out from the other openings then you will be sure the jacket is in good condition and ready for connection to range boiler again.

In some cases a jacket or coil becomes so thoroughly choked up that it is almost impossible to clean in the ordinary way. When this occurs, the best thing to do is to get a

pint of Muriatic Acid and pour in one end of jacked and let stand about a day, then empty out old acid and pour some more in till the jacket shows some sign of being clean. If the jacket does not yield to this treatment, the only thing to do is to get a new jacket or water back from your local hardware dealer or agent for that particular stove or range.

In the winter time during a cold period if there is no fire lit in stove, jackets very often freeze up. If there is any doubt at all about water being frozen in jacket, the best way to do is to find out first. The best way to find out if the water is all right is by turning on the hot water faucet over the kitchen sink. If the water runs a continual stream, then one can be satisfied that the water has a circulation through the boiler and jacket and it will be safe to build a fire. If there was any freeze up at all the water would not run

through the boiler. When a boiler freezes up it is a hard matter to thaw out. About the best way to do would be to light a small oil stove or some such thing underneath the boiler or as close as possible to the boiler and thaw out gradually. Always open the draw-off valve underneath the boiler after having first turned off water at the top of boiler. By following these simple rules and instructions, it will be possible to reduce to a minimum the danger that might otherwise be fraught with serious results. There have been more accidents with range boilers through jackets being frozen up than from any other known cause. The safest way is the best way and this rule can be applied to this one of kitchen stoves.

CONNECTING RANGES

To connect a water jacket or coil from the kitchen range to the boiler, great care should be taken to give the pipes a gradual rise and fall. The pipes leading from the stove to boiler should be connected as near like the drawing as possible. (See Fig. 12.) Never use less than ¾-inch pipe when making a range connection. Always leave a tee fitting on the bottom pipe so a faucet can be attached. By having a faucet, water can be drained from boiler. A good way to help keep the water jacket clean is to run the water off from this

faucet every week. Two or three buckets of water taken out this way every week will do a whole lot toward keeping jacket free from sediment and rust.

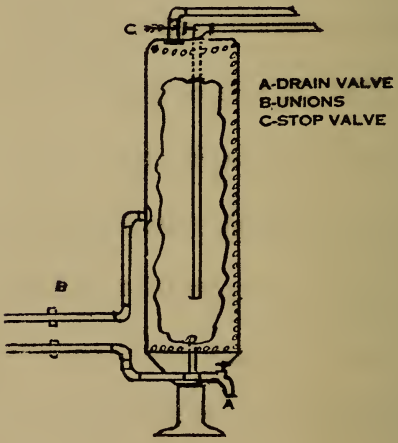


Fig. 12.

CAUSE OF WATER IN GAUGE GLASS OF LOW PRESSURE STEAM BOILER JUMPING.

Where there is a small heating plant in use such as is used in apartment houses, stores, churches, etc., it has been found that by blowing out or flushing the boiler every year there is a considerable saving of coal. The gauge glass will denote when this is necessary. The water in glass will keep up a constant jumping motion when boiler is being fired. The glass will also be discolored with rust, making it difficult to see just how much water there is in boiler. All this is caused through the rust and sediment always found in the bottom of boilers, which should never be allowed to remain very long.

To get the full amount of steam from the amount of fuel consumed, this matter should be remedied. The way to do this is to first take out with a large wrench the plugs from the sides of boiler. This allows the sediment to all run out of the bottom of boiler. Next take off the safety valve from top of boiler and attach the hose to the opening and force a stream of water through till all signs of rust have disappeared and water becomes clear. Then pour a little oil on the threads of plugs (linseed oil will do) and screw them back in. After the openings have been made tight fill up with water till the water shows in glass. The proper height for the water in gauge glass is about three inches from the top of glass. Never let the water drop any lower than this for safety.

CARE OF HOT WATER FURNACES

In apartment houses, residences, office buildings, etc., there is nearly always installed a heating apparatus, either steam or hot water systems.

Now any one who is not familiar with the workings of either of these systems may unknowingly cause a great deal of damage. If the reader owns a heating plant of his own a careful study of this article will probably save him much grief and expense and he will always be on the safe side.

Where there is a hot water system installed in the home it is always advisable to look the whole system over before the time comes to start the fire. The boiler needs the most attention. The first thing to do is to make sure that there is sufficient water in the

boiler and radiators. Nearly all Hot Water boilers have what is called an Indicator or Altitude Gauge. (See Fig. 14.) This enables a person to tell just how much water there is in the boiler and radiators. The red finger on the gauge denotes the height of water in the system, and when once properly adjusted ought never to be moved. The black finger on the gauge is the one that moves up and down according to the height of water pressure in the boiler. When the water is at the proper height this black finger should be on a line with the red finger or somewhere close to it. When the black finger is down to the nothing mark it indicates that there is an entire absence of water or the system is not in good working order.

HOW TO FIX

Always try the highest radiator to ascertain if the water is up to that point by opening the small pet valve always found on the

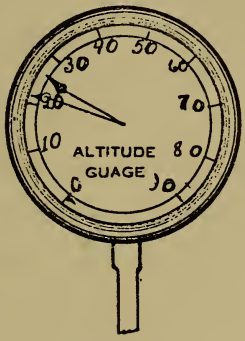


Fig. 14.

end of hot water radiators. If the water issues from this point, then it will be safe to light a fire in furnace. In filling a hot water system always turn the water in before the fire is started.

A steam or hot water system should always be equipped with a draw-off valve placed at the lowest point of boiler. In freezing weather the water should be drained out of boiler when the house is vacant or system not in use. This can be done by attaching a hose to the draw-off valve, generally found at the bottom of boiler, and letting the water run out to some convenient place, such as a sink or drain of some kind. By taking this precaution much expense can be saved by eliminating the cause. When the time comes that furnace is to be used, it is an easy matter to fill up with water again.

Always be sure to open air valves on end of radiators when emptying hot water system.